Appl. No. 10/817,354
Response dated 27th September 2005
Communication in reply to action dated 08-July-05

Listing of Claims.

1. – 11. (Cancel herein)

12. (previously Cancelled)

13. – 14. (Cancel herein)

15. – 22. (previously Cancelled)

23. – 28. (Cancel herein)

29. (Currently amended) A method of producing an electrical resistive device, the method comprising the steps of:

(a) forming an array of titania nanotubes open at an outwardly-directed end by anodizing at least a portion of a first titanium layer;

(b) prior to said anodizing, depositing said first titanium layer atop [[~~said~~]] an integral support member, which comprises an electrically insulative substrate layer, by performing a deposition process selected from the group consisting of: sputtering, evaporation using thermal energy, E-beam evaporation, ion assisted deposition, ion plating, electrodeposition, screen printing, chemical vapor deposition, molecular beam epitaxy (MBE), and laser ablation; and

(c) after said step of depositing said first titanium layer and prior to said anodizing, depositing a second titanium layer, leaving a portion of said first titanium layer uncovered for said forming said array of titania nanotubes.

30. (Original) A method of producing an electrical resistive device for sensing hydrogen gas, the method comprising the steps of:

(a) forming an array of titania nanotubes open at an outwardly-directed end by anodizing at least a portion of a titanium layer;

(b) prior to said anodizing, depositing an aluminum layer atop an electrically insulative substrate layer;

(c) after said step of depositing said aluminum layer, depositing said titanium layer atop said aluminum layer by performing a deposition process selected from the group consisting of: sputtering, evaporation using thermal energy, E-beam evaporation, ion assisted deposition, ion plating, electrodeposition, screen printing, chemical vapor

deposition, molecular beam epitaxy (MBE), and laser ablation; and

(d) after said anodizing, heat treating said array of titania nanotubes in the presence of oxygen forming a titanium-oxide layer interposed between said aluminum layer and said array of titania nanotubes.

31. (Currently amended) The method of claim 29:

~~**(a)** wherein said titania nanotubes are formed to have a length greater than 600nm; and~~

~~**(b)**~~ further comprising, after said anodizing, the steps of:

- heat treating said array of titania nanotubes in the presence of oxygen; and
- depositing a plurality of metal electrode-contacts atop said titania nanotubes so formed.

32. (Currently amended) The method of claim 29:

(a) wherein the electrical resistive device so produced is adapted for sensing hydrogen gas;

(b) wherein said ~~step of forming said array~~ anodizing comprises exposing an outwardly-directed surface of said first titanium layer to an acidic electrolyte solution comprising a fluoride compound and an acid at a voltage selected from **[[a]]** the range from 6V to 25V, for a selected time-period within **[[a]]** the range of 1 hour to 24 hours; and

(c) further comprising, after said step of forming said array, the step of depositing a plurality of palladium clusters atop said array of titania nanotubes.

33. – 39. (Cancel herein)